WHAT IS CLAIMED IS:

1. A cleavable signal element, comprising:

a cleavable spacer, said cleavable spacer having a substrate-attaching end, a signal-responsive end, and a cleavage site intermediate said substrate-attaching end and said signal responsive end;

a signal responsive moiety;

a first side member adapted to bind a first site on a chosen analyte; and

a second side member adapted to bind a second site of said chosen analyte;

wherein said signal responsive moiety is attached to said cleavable spacer at said signal responsive end, said first side member is attached to said cleavable spacer intermediate said signal responsive end and said cleavage site, and said second side member is attached to said cleavable spacer intermediate said cleavage site and said substrate attaching end.

2. The cleavable signal element of claim 1, wherein said signal responsive moiety is adapted to reflect or scatter incident light.

3. The cleavable signal element of claim 2, wherein said signal responsive moiety is a metal microsphere.

4. The cleavable signal element of claim 3, wherein said metal microsphere consists essentially of a

metal selected from the group consisting of gold, silver, nickel, platinum, chromium and copper.

5. The cleavable signal element of claim 4, wherein said metal microsphere consists essentially of gold.

6. The cleavable signal element of claim 5, wherein said gold microsphere has a diameter between 1 nm - 10 μm.

7. The cleavable signal element of claim 6, wherein said gold microsphere has a diameter between 0.5 - 5 μm.

8. The cleavable signal element of claim 7, wherein said gold microsphere has a diameter between 1 - 3 μm.

9. The cleavable signal element of claim 1, wherein said cleavage site is susceptible to chemical cleavage.

10. The cleavable signal element of claim 9, wherein said chemically susceptible cleavage site includes at least one siloxane group.

11. The cleavable signal element of claim 1, wherein said first side member and said second side member include oligonucleotides.

12. The cleavable signal element of claim 11, wherein said first and second side member oligonucleotides are 5mers - 20mers.

13. The cleavable signal element of claim 12, wherein said first and second side member oligonucleotides are 8mers - 17mers.

14. The cleavable signal element of claim 12, wherein said first and second side member oligonucleotides are 8mers - 12mers.

15. The cleavable signal element of claim 1, wherein

said first side member includes a first member of a first specific binding pair,

said second side member includes a first member of a second specific binding pair, and

said second member of said first specific binding pair and said second member of said second specific binding pair are each present on the surface of a single analyte.

16. The cleavable signal element of claim 15, wherein said first member of said first specific binding pair includes a first antibody, antibody fragment, or antibody derivative, and said first member of said second specific binding pair includes a second antibody, antibody fragment, or antibody derivative.

17. The cleavable signal element of claim 15, wherein

said first side member includes a first side member oligonucleotide,

said second side member includes a second side member oligonucleotide,

said first member of said first specific binding pair includes a first binding pair oligonucleotide,

said first member of said second specific binding pair includes a second binding pair oligonucleotide, and

said first side member oligonucleotide includes sequence complementary to sequence included in said first binding pair oligonucleotide, said second side member oligonucleotide includes sequence complementary to sequence included in said second binding pair oligonucleotide, and said complementary sequences are noncovalently associated.

18. An assay device for detecting analyte, comprising: an optical disk having analyte-specific signal elements disposed readably thereon.

19. The assay device of claim 18, wherein said analyte-specific signal elements are cleavable.

20. An assay device for detecting analyte, comprising: an optical disk having analyte-specific signal elements disposed readably thereon, wherein said analyte-specific signal elements are cleavable signal elements according to any one of claims 1 - 17.

21. A method of assaying for analyte, comprising the steps of:

contacting the assay device of claim 18 with a sample, and then

detecting, using an optical disk reader, analyte-specific signals therefrom.

22. A method of assaying for analyte, comprising the steps of:

contacting the assay device of claim 19 with a sample;

cleaving said cleavable signal elements; and then

detecting the signal responsive moiety of analyte-restrained cleaved signal elements.

23. A method of using an optical disk reader to assay for analyte, comprising the step of detecting, from an optical disk, analyte-specific signal elements disposed readably with said disk's tracking features.

24. A method of using an optical disk reader to assay for analyte, comprising the step of detecting, from the assay device of claim 18, analyte-specific signals.

25. A method of using an optical disk reader to assay for analyte, comprising the step of detecting, from the assay device of claim 19, analyte-specific signals.

26. A method of making an assay device for detecting analyte, comprising: disposing analyte-specific

signal elements on an optical disk readably with said disk's tracking features.

27. The method of claim 26, wherein said analyte-specific signal elements are cleavable signal elements.

28. A monitoring device, comprising: an optical disk having a plurality of analyte-specific signal elements, wherein said optical disk is adapted to function as an optical waveguide and said analyte-specific signal elements are so disposed that specific binding of analyte detectably alters the light-transmitting properties of said optical waveguide.

29. The monitoring device of claim 28, wherein said analyte-specific signal elements are disposed readably with said disk's tracking features.

30. The monitoring device of claim 28, wherein said analyte-specific signal elements are cleavable signal elements.

31. A monitoring device, comprising: an optical disk having a plurality of analyte-specific signal elements, wherein said optical disk is adapted to function as an optical waveguide and said analyte-specific signal elements are so disposed that specific binding of analyte detectably alters the light-transmitting properties of said optical waveguide, wherein said analyte-specific signal elements are cleavable signal elements according to claim 1.

32. A method of monitoring for presence of analyte, comprising: contacting the monitoring device of claim 28 with a sample, and then detecting alterations in the light-transmitting properties of said monitoring device's optical waveguide.

33. A method of monitoring for presence of analyte, comprising:

contacting the monitoring device of claim 30 with a sample;

detecting alterations in the light-transmitting properties of said monitoring device's optical waveguide;

cleaving said signal elements; and then

detecting the signal responsive moiety of analyte-restrained cleaved signal elements.